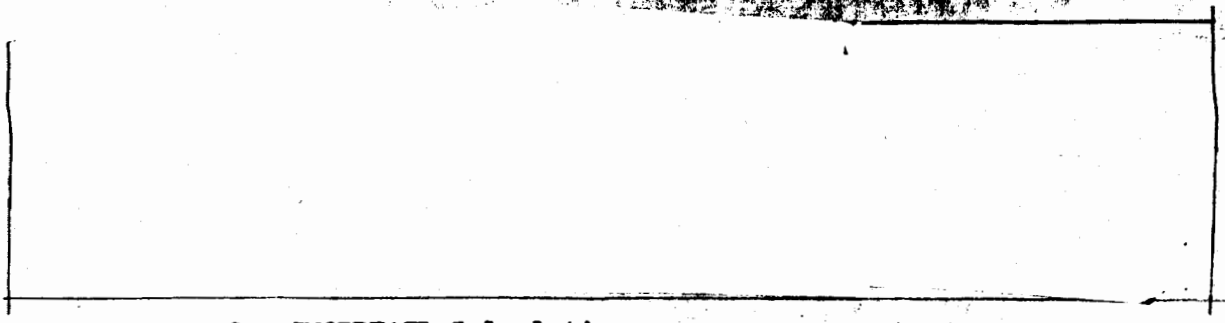
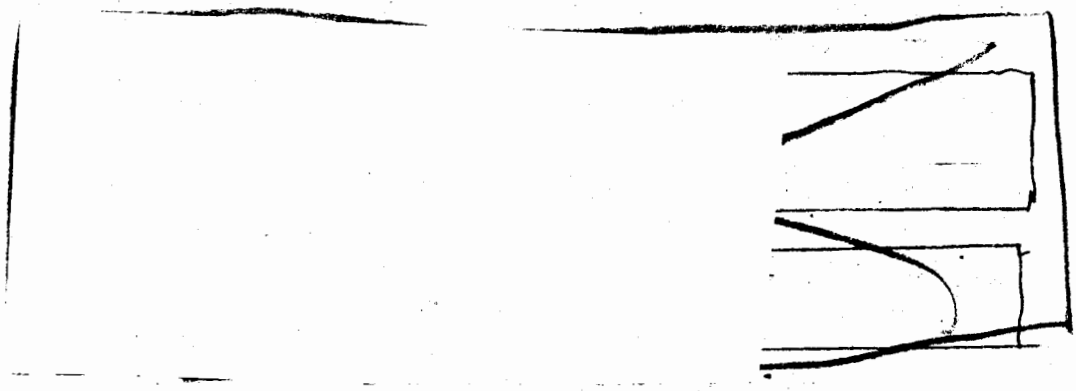


DOE b(3)

Future Plans for SWORDTAIL Calculations

It is planned to study the effect of variations in each of the following:

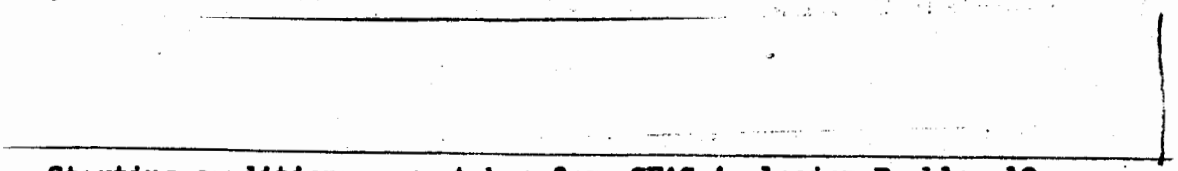


DOE b(3)

DOE b(3)

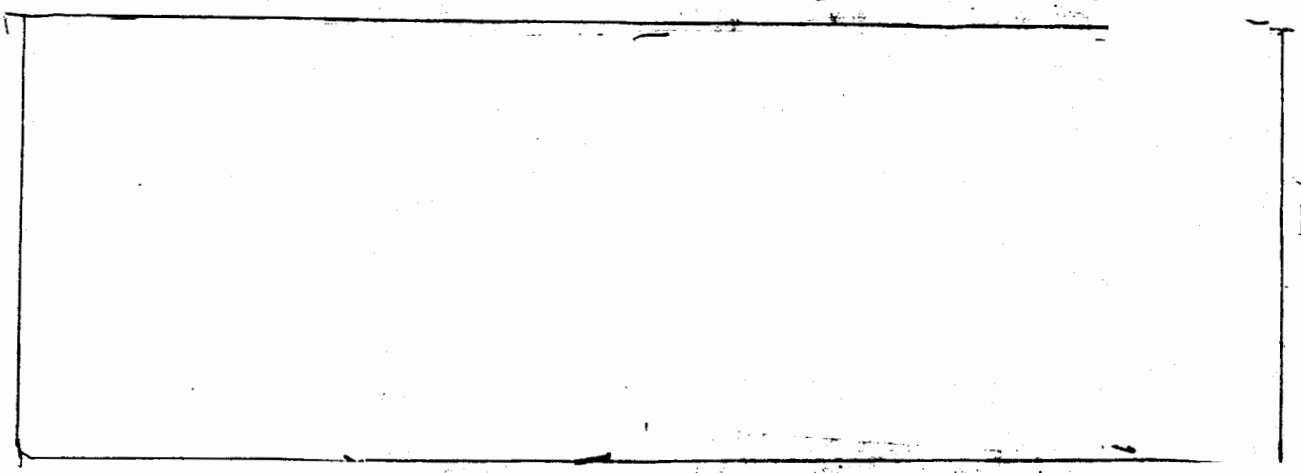
4. Calculation on Ignition of Steady State Burning

Wilets reported on the results of the CHIEF calculation carried out by Matterhorn on the UNIVAC.



DOE b(3)

Starting conditions were taken from SEAC implosion Problem 19.



DOE b(3)

The results are given in the following graphs:

Fig. 1

Fig. 2

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Fig. 3

Fig. 4

Fig. 5 Specific volume vs. distance at above specified times.

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Future Plans for CHIEF Calculations

1.

2.

3.

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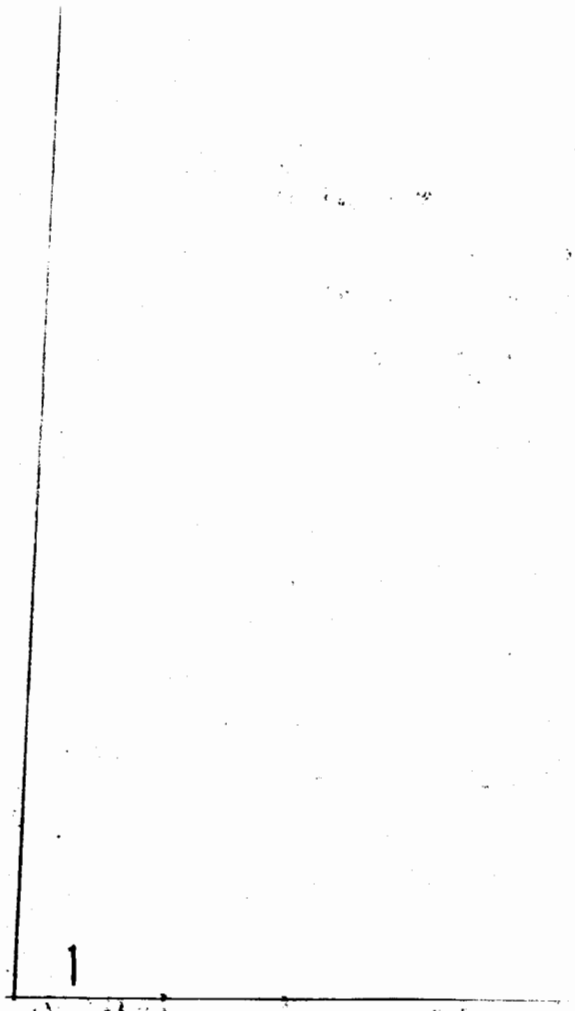
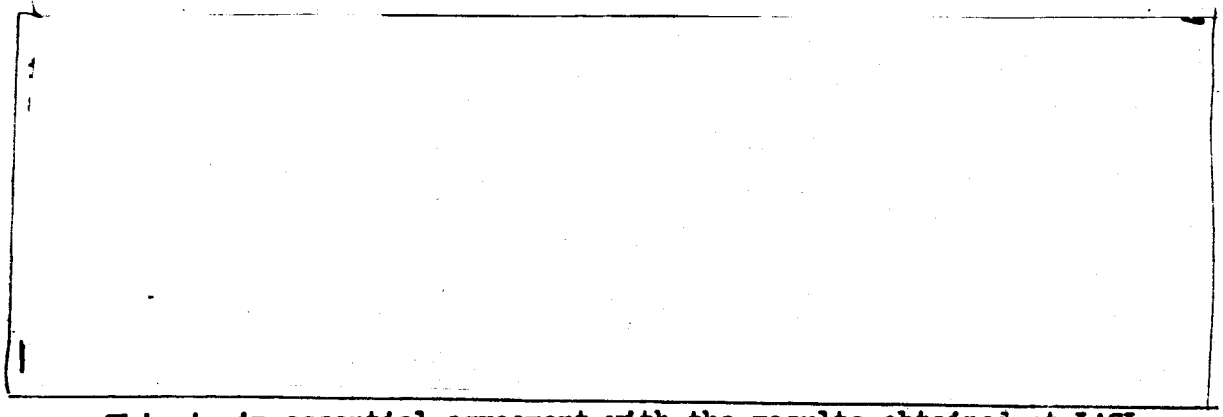
5. [redacted]



[redacted]

b(3)



This is in essential agreement with the results obtained at LASL (see 30th Minutes).

6. Investigation of Mixing

If a system is accelerated by a series of sharp pulses, does mixing occur? If this were averaged, one would obtain mixing according to the usual formula. Under what conditions would this be justifiable?

Matterhorn has been investigating this problem and finds that recurrent shocks are capable of giving rise to Taylor instability.

Now

$$A = A_0 e^{\alpha t}$$

where A_0 is initial amplitude and

$$\alpha = \frac{1}{\Delta t} \text{ arc cosh } \left[1 + \frac{g}{2\lambda} (\Delta t)^2 \right]$$

where Δt is the time interval between pulses.

If the shocks are close together and λ is large the irregularities in the acceleration are not resolved so that one gets the ordinary expression

$$\alpha = \sqrt{g/\lambda} \ .$$

If the shocks are not closely spaced, then

$$\alpha = \frac{1}{\Delta t} \ln \left[g(\Delta t)^2/\lambda \right]$$

so that

$$A = A_0 \left[g(\Delta t)^2/\lambda \right]^n$$

where $n = t/\Delta t$ = number of shocks in time t.

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assumed to be 5.

For the above calculations of E-F, C was

de Hoffmann reported some results obtained in cooperation with Kahn of Rand to study the effect of varying y.

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1

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It was decided to

1

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R. W. Goranson

R. W. Goranson

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